

5   **THE CLAIMS**

We claim:

1.   A system for controlling the operation of a pay-as-  
10   you-go laundry facility that includes multiple washing  
machines using at least one working fluid, comprising:

        a centralized fluid distribution system for  
dispensing a metered amount of working fluid to each of  
15   said multiple washing machines;

        a dispensing controller for controlling said  
centralized fluid distribution system according to a  
predetermined dispensing sequence;

20          a washing sequence controller at each of said  
washing machines, connected to independently operate a  
washing machine according to a selected washing sequence;

25          a payment processor constructed to receive and  
approve a payment medium presented by the user according  
to a predetermined payment sequence;

        a system controller connected to said payment  
30   processor, said washing sequence controller, and said  
dispensing controller to receive inputs therefrom and to  
generate and control signals thereto according to a  
predetermined control sequence.

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2. A system for controlling the operation of a pay-as-you-go laundry facility that includes multiple washing machines using at least one working fluid, as described in claim 1, wherein a user interface is operatively connected to said system controller to allow the user to make selections in response to prompts from said system controller.

3. A system for controlling the operation of a pay-as-you-go laundry facility that includes multiple washing machines using at least one working fluid, as described in claim 1, wherein said system controller is connected to the multiple washing machines through a gang controller which monitors the status of the washing machines and controls said washing machine controllers.

4. A system for controlling the operation of a pay-as-you-go laundry facility that includes multiple washing machines using at least one working fluid, as described in claim 1, wherein said centralized fluid distribution system comprises:

at least one tank for holding a working fluid;

a pump for moving working fluid downstream from said tank under pressure into a distribution conduit;

a distribution manifold connected to receive working fluid pumped from said tank and distribute said fluid to multiple conduits connected to said multiple washing machines;

a valve connected in each of said washing machine conduits to control the flow of working fluid therein; and

5        wherein said pump and said valve are controlled by signals from said dispensing controller to dispense a metered amount of working fluid according to a predetermined dosage .

10       5. A system for controlling the operation of a pay-as-you-go laundry facility that includes multiple washing machines using at least one working fluid, as described in claim 4, wherein said centralized fluid distribution system further comprises a system of sensors for  
15       monitoring the flow continuity of said fluid distribution system.

6. A system for controlling the operation of a pay-as-you-go laundry facility that includes multiple washing  
20       machines using at least one working fluid, as described in claim 5, wherein said system of sensors comprises a first flow sensor connected in said distribution conduit downstream of said pump for generating a first signal indicative of the flow of working fluid therein, said  
25       first signal being sent to said dispensing controller.

7. A system for controlling the operation of a pay-as-you-go laundry facility that includes multiple washing machines using at least one working fluid, as described  
30       in claim 6, wherein said system of sensors further comprises a second flow sensor connected in said distribution conduit downstream of said valve for generating a second signal indicative of the flow of working fluid therein, said second signal being sent to  
35       said dispensing controller.

8. A system for controlling the operation of a pay-as-you-go laundry facility that includes multiple washing machines using at least one working fluid, as described  
5 in claim 4, wherein said centralized fluid distribution system further comprises a temperature sensor for sensing the temperature of said working fluid and sending a signal indicative thereof to said dispensing controller.

10 9. A system for controlling the operation of a pay-as-you-go laundry facility that includes multiple washing machines using at least one working fluid, as described in claim 8, wherein said temperature sensor is positioned to sense the temperature of the working fluid in said  
15 distribution manifold.

10. A system for controlling the operation of a pay-as-you-go laundry facility that includes multiple washing machines using at least one working fluid, as described  
20 in claim 4, wherein said centralized fluid distribution system further comprises at least a second tank for holding a second working fluid wherein said second tank is connected to:

25 a second pump for moving working fluid downstream from said second tank under pressure into a second distribution conduit;

a second distribution manifold connected to receive  
30 said second working fluid pumped from said second tank and distribute said second fluid to second multiple conduits connected to said multiple washing machines;

a second valve connected in each of said second washing machine conduits to control the flow of said second working fluid therein; and

5        wherein said second pump and said second valve are controlled by signals from said dispensing controller to dispense a metered amount of said second working fluid according to a predetermined dosage.

10    11. A system for controlling the operation of a pay-as-you-go laundry facility that includes multiple washing machines using at least one working fluid, as described in claim 4, wherein said tank includes a level sensor to monitor the supply of working fluid therein.

15        12. A system for controlling the operation of a pay-as-you-go laundry facility that includes multiple washing machines using at least one working fluid, as described in claim 1, wherein said payment processor comprises a  
20    card reader to receive a payment card from said user, said payment processor being in communication with a remote transaction authorization system.

25        13. A system for controlling the operation of a pay-as-you-go laundry facility that includes multiple washing machines using at least one working fluid, as described in claim 1, wherein said payment processor comprises a card reader to receive a stored-value payment card from said user and to deduct the payment from the balance  
30    stored on the card.

14. A system for controlling the operation of a pay-as-you-go laundry facility that includes multiple washing machines using at least one working fluid, as described

in claim 1, wherein said payment processor comprises a mechanism for accepting cash payments.

15. A system for controlling the operation of a pay-as-you-go laundry facility that includes multiple washing machines using at least one working fluid, as described in claim 1, further comprising a first algorithm operatively associated with said system controller and wherein said first algorithm causes said system controller to activate said dispensing system control processor in response to acceptance of said payment medium by said payment processor.

16. A system for controlling the operation of a pay-as-you-go laundry facility that includes multiple washing machines using at least one working fluid, as described in claim 15, wherein said first algorithm causes said system controller to prompt said user, through said user interface, to select one of said multiple washing machines and to check the status of the selected washing machine in response to said user's selection.

17. A system for controlling the operation of a pay-as-you-go laundry facility that includes multiple washing machines using at least one working fluid, as described in claim 16, wherein said first algorithm further causes said system controller to check the supply of working fluids and prompt said user, through said user interface, to select only those said working fluids that are currently available.

18. A system for controlling the operation of a pay-as-you-go laundry facility that includes multiple washing machines using at least one working fluid, as described in claim 1, wherein said dispensing controller further

comprises a second algorithm operatively associated with said dispensing controller and wherein said second algorithm causes said dispensing controller to activate said pump for a predetermined interval, prior to dispensing, to allow said working fluid to fill said fluid distribution system to the valve associated with the selected washing machine in response to a signal from said system controller.

10 19. A system for controlling the operation of a pay-as-you-go laundry facility that includes multiple washing machines using at least one working fluid, as described in claim 18, wherein said second algorithm causes said dispensing controller to vary the fill interval according to the working fluid being dispensed.

20 20. A system for controlling the operation of a pay-as-you-go laundry facility that includes multiple washing machines using at least one working fluid, as described in claim 18, wherein said second algorithm causes said dispensing controller to open said valve for a predetermined period to dispense a metered dosage of working fluid to the selected washing machine after the expiration of said fill interval.

25 21. A system for controlling the operation of a pay-as-you-go laundry facility that includes multiple washing machines using at least one working fluid, as described in claim 18, wherein said second algorithm causes said dispensing controller to check the continuity of the fluid distribution system during dispensing of working fluid.

35 22. A system for controlling the operation of a pay-as-you-go laundry facility that includes multiple washing

machines using at least one working fluid, as described in claim 18, wherein said second algorithm causes said dispensing controller to adjust the open time of the valve according to the temperature of the working fluid.

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23. In a system for controlling the operation of a pay-as-you-go laundry facility that includes multiple washing machines using at least one working fluid, a method for dispensing working fluid comprising the steps of:

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prompting the user to present a payment medium:

prompting the user to select a washing machine and verifying the available status thereof;

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activate the selected washing machine;

sensing the availability of working fluid for dispensing in a reservoir for said working fluid;

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prompting the user to select a working fluid;

processing a transaction according to the selections made by the user to verify authenticity of the payment medium and authorize payment; and

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dispensing a metered dosage of the selected working fluid to the selected washing machine; and

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24. In a system for controlling the operation of a pay-as-you-go laundry facility that includes multiple washing machines using at least one working fluid, a method for dispensing working fluid, according to claim 23, further comprising the step of monitoring the availability of



working fluid by counting the number of dosages dispensed.

25. In a system for controlling the operation of a pay-  
5 as-you-go laundry facility that includes multiple washing  
machines using at least one working fluid, a method for  
dispensing working fluid, according to claim 23, further  
comprising the step of monitoring the availability of  
working fluid by sensing the level of working fluid in  
10 the reservoir for said working fluid.

26. In a system for controlling the operation of a pay-  
as-you-go laundry facility that includes multiple washing  
machines using at least one working fluid, a method for  
15 dispensing working fluid, according to claim 23, wherein  
the step of dispensing a metered dosage of the selected  
working fluid to the selected washing machine further  
comprises the steps of:

20       activating a pump to fill a distribution manifold  
with the selected working fluid;

          connecting the manifold to the selected washing  
machine through a conduit;

25       controlling the flow of working fluid in the conduit  
by means of a valve;

          opening said valve to allow working fluid to flow to  
30 said washing machine for a predetermined time in order to  
deliver a predetermined dosage of the selected working  
fluid.

27. In a system for controlling the operation of a pay-  
35 as-you-go laundry facility that includes multiple washing

machines using at least one working fluid, a method for dispensing working fluid, according to claim 25, further comprising the step of delaying the opening of the valve for a predetermined fill interval to allow the working  
5 fluid to establish a flow in the manifold and conduit.

28. In a system for controlling the operation of a pay-as-you-go laundry facility that includes multiple washing machines using at least one working fluid, a method for  
10 dispensing working fluid, according to claim 27, wherein the step of opening said valve to allow working fluid to flow to said washing machine for a predetermined time further comprises the steps of:

15 checking the temperature of the working fluid; and

adjusting the fill interval according to said temperature.

20 29. In a system for controlling the operation of a pay-as-you-go laundry facility that includes multiple washing machines using at least one working fluid, a method for dispensing working fluid, according to claim 23, further comprising the step of checking the continuity of the  
25 working fluid flow path through the manifold and conduit.

30. In a system for controlling the operation of a pay-as-you-go laundry facility that includes multiple washing machines using at least one working fluid, a method for  
30 dispensing working fluid, according to claim 29, wherein the step of checking the continuity of the working fluid flow path through the manifold and conduit is accomplished by placing at least one flow sensor in the working fluid flow path and monitoring the signals from  
35 said flow sensor.

31. In a system for controlling the operation of a pay-as-you-go laundry facility that includes multiple washing machines using at least one working fluid, a method for dispensing working fluid, according to claim 29, further comprising the step of checking the continuity of the working fluid flow path through the manifold and conduit by monitoring the activation time period of the pump and setting a maximum run time indicative of failed continuity.

32. In a system for controlling the operation of a pay-as-you-go laundry facility that includes multiple washing machines using at least one working fluid, a method for dispensing working fluid, according to claim 28, wherein the sensing of the temperature is delayed for a predetermined interval to allow the temperature to reach equilibrium.

33. In a system for controlling the operation of a pay-as-you-go laundry facility that includes multiple washing machines using at least one working fluid, a method for dispensing working fluid, according to claim 32, wherein temperature equilibrium is determined by sensing the temperature of the working fluid in the reservoir and in the manifold and determining equilibrium when said sensed temperatures are equal.

34. In a system for controlling the operation of a pay-as-you-go laundry facility that includes multiple washing machines using at least one working fluid, a method for dispensing working fluid, according to claim 27, wherein the fill interval is adjusted depending on the selected washing machine to accommodate different lengths of flow paths for the washing machines.

35. A system for controlling the operation of a pay-as-you-go laundry facility that includes multiple washing machines using at least one working fluid, comprising:

5       a centralized fluid distribution system for dispensing a metered amount of working fluid to each of said multiple washing machines;

          a dispensing controller for controlling said  
10 centralized fluid distribution system according to a predetermined dispensing sequence;

          a washing sequence controller at each of said washing machines, connected to independently operate a  
15 washing machine according to a selected washing sequence;

          a system controller at each of said washing machines, connected to said washing sequence controller, and said dispensing controller to receive inputs  
20 therefrom and to generate and control signals thereto according to a predetermined control sequence; and further wherein said centralized fluid distribution system comprises:

25       at least one tank for holding a working fluid;

          a pump for moving working fluid downstream from said tank under pressure into a distribution conduit;

30       a distribution manifold connected to receive working fluid pumped from said tank and distribute said fluid to multiple conduits connected to said multiple washing machines;

a valve connected in each of said washing machine conduits to control the flow of working fluid therein; and

5        wherein said pump and said valve are controlled by signals from said dispensing controller to dispense a metered amount of working fluid according to a predetermined dosage .

10    36. A system for controlling the operation of a pay-as-you-go laundry facility that includes multiple washing machines using at least one working fluid, as described in claim 35 further comprising a payment processor constructed to receive and approve a payment medium  
15    presented by the user according to a predetermined payment sequence.